

C. Huang et al.  
U.S. Serial No. 10/759,863  
Page 5 of 6

### REMARKS

Applicants appreciate the notification of allowable subject matter, i.e., claims 3, 4, 8, 9, 11, 12, and 14-16 are objected to, but would be allowable if rewritten in independent form.

Claims 1-20 are pending in the application. Claims 1, 6-11, and 20 have been amended by the present amendment. In particular, independent claim 1 has been amended to incorporate allowable subject matter of claims 8 and 9. The amendments are fully supported by the application as originally filed (see, e.g., specification at page 10, first paragraph; page 11, third paragraph; original claims 8 and 9; and FIG. 1).

Applicants' claimed invention is directed to a semiconductor package having a heat dissipating structure that is formed by stacking a plurality of heat sinks. As amended, claim 1 recites a heat dissipating structure including a first heat sink and a plurality of second heat sinks, where the second heat sinks are mounted on the substrate and stacked on one another by second positioning portions.

Referring to FIG. 1, a top (first) heat sink 30 has a first positioning portion 32 mounted on second positioning portions 27 of a plurality of interlayer (second) heat sinks 25, where the second heat sinks 25 are stacked on one another by the second positioning portions 27 and mounted on a substrate 10 (see, e.g., specification at page 10, first paragraph and page 11, third paragraph).

Applicants' claimed invention can provide significant benefits. The heat dissipating structure is formed by stacking a plurality of heat sinks, instead of using a conventional forging process (see specification at page 12, last paragraph). Therefore, it is possible to reduce package height and form the heat dissipating structure without limiting aspect ratio (see page 12, last paragraph to page 13, first paragraph). Further advantages include increasing heat dissipation area, preventing stress concentration on the heat sinks, avoiding deformation and delamination, increasing adhesion of the heat sinks within the package, and varying the size and shape of the heat sinks (see, e.g., page 13, first paragraph).

C. Huang et al.  
U.S. Serial No. 10/759,863  
Page 6 of 6

Claims 1, 2, 5-7, 10, 17, and 19 were rejected under 35 USC 102(a) as being anticipated by U.S. Patent 6,552,266 to Carden et al. ("Carden"). Claim 13 was rejected under 35 USC 103(a) as being unpatentable over Carden in view of U.S. Patent 5,956,226 to Jung et al. Claims 18 and 20 were rejected under 35 USC 103(a) as being unpatentable over Carden in view of "the prior art disclosed in the instant application." These rejections are respectfully traversed.

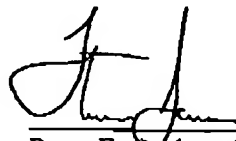
Carden does not teach or suggest a heat dissipating structure in which a plurality of second heat sinks are mounted on a substrate and stacked on one another by second positioning portions, such that a first heat sink is mounted on the uppermost one of the second heat sinks.

Referring to FIG. 1 of Carden, e.g., even if base portion 21 of the stiffener 20 is somehow considered a "first heat sink" and if base section 32 of the stiffener 30 is somehow considered a "second heat sink," there is no teaching or suggestion in Carden of a plurality of second heat sinks which are mounted on a substrate and stacked on one another by second positioning portions. Instead, Carden addresses problems such as cracking between a cover plate, stiffener, and chip because of failure to evenly or uniformly coat surfaces of the cover plate and stiffener with adhesives (see, e.g., column 1, lines 17-40 and 53-62).

For at least the reasons discussed above, the Carden reference does not anticipate or otherwise render obvious the Applicants' claimed invention.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,



Peter F. Corless (Reg. No. 33,860)  
Steven M. Jensen (Reg. No. 42,693)  
EDWARDS & ANGELL, LLP  
P.O. Box 55874  
Boston, MA 02205

Date: June 30, 2005

Phone: (617) 439-4444

Customer No. 21874